



Water and Wastewater Study
Combined

**FINAL Basis of Design
Report**

☒ **APPROVED**

☐ **APPROVED AS NOTED**

☐ **REVISE AND RESUBMIT**



Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY rsacks

DATE 3/25/2020

**WATER REPORT
FOR
10535 E SHAW BUTTE**



March 17, 2020

**CLOUSE ENGINEERING, INC.
JOB NO. 190908**

City of Scottsdale Case No. 11-PP-2019

**11-PP-2019
03/24/20**

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1.0 PROJECT DESCRIPTION

10535 E SHAW BUTTE is a proposed single-family development located in south Scottsdale encompassing a total of 2.1-acres. At completion the site will consist of 2 single family home sites under the R1-43 zoning category.

1.2 PURPOSE/SCOPE

The purpose of this study is to determine the onsite waterline requirements to service the 10535 E SHAW BUTTE development. Maximum flows required by the development will be calculated.

1.3 PROJECT LOCATION

The proposed 2-lot subdivision is located within the City of Scottsdale and is located on the west side of the 106th Street alignment just south of Cactus Road. Legally, the site lies in a portion of the S.W. ¼ of the S.W. ¼ of Section 21, T. 32 N., R. 5 E., G. & S. R. B. & M., Maricopa County, Arizona.

Figure 1.1 – Site Location

2.0 EXISTING AND PROPOSED WATER DISTRIBUTION SYSTEMS

2.1 Existing Water Distribution System

The project site is located within the City of Scottsdale water distribution system within Zone 3 of the system. An existing 8" PVC water main is located within Laurel Lane immediately to the south of the site. Additionally, a 6" PVC water main south within 106th Street from Laurel Lane.

2.2 Proposed Water Distribution System

The project site will connect to the existing 8" PVC water main to provide domestic, fire, and landscape water for the site. Water infrastructure improvements for the site will include an 8-inch DIP waterline. The new watermain will be extended from the intersection of 106th Street and Laurel Lane north within the new 106th Street to Paradise Lane and then west within Paradise Lane to the project's western boundary. Fire hydrant spacing is per the City of Scottsdale guidelines.

3.0 WATER DEMAND CALCULATIONS

3.1 Water Demand Calculations

The design criteria for calculating the water flows from the development is based upon the City of Scottsdale DS&PM Chapter 6. The design criteria used for calculating the maximum day water flows is as follows:

Average Daily Flow Per Unit = 0.69 gpm

Max. Daily Flow = 2.0 x Average Daily Flow

Peak Hour Flow = 3.5 x Average Day Flow

Fire Flow = 500-gpm with fully sprinkled buildings

Minimum Pressure = 50-psi (average day demand) & 30-psi (peak day demand w/ fire flow)

Based on the above design criteria, Table 3.1 below provide the calculations for the maximum daily water flow required by the site.

No. of Lots	Avg. Day Flow (gpm)	Max. Day Flow (gpm)	Peak Hour Flow (gpm)
2	1.38	2.76	4.83

Table 3.1 – Single-Family Water Calculations

A fire flow test was completed for the property on 3/12/20. A static pressure of 100-psi was reported with a residual pressure of 89-psi with a flow rate of 1,350-gpm. A copy of the fire flow test is provided in the Appendix.